The Family Strengthening Mothers Study:

The impact of a home-based intervention for American Indian teen parents on parenting and maternal and child health outcomes

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Introduction

- Background and Significance
- Preliminary Studies
- Findings
- Summary and Discussion

Note: The opinions expressed are those of the authors and do not necessarily reflect the views of the Indian Health Service

Background and Significance

- The collaborators
- The need
- What is known about what works
- What is not known

The Collaborators

- The Navajo Nation
- The White Mountain Apache Tribe
- Johns Hopkins Center for American Indian Health

Navajo and Apache Tribes

- 20% of all reservation-based NAs in the United States
- First contact with white settlers 1600's
- Long and complex history
  - Resistance to subjugation by the federal government
  - Hard-won battles for land and self-determination
  - Increasing self-governance in human and health services and land management.

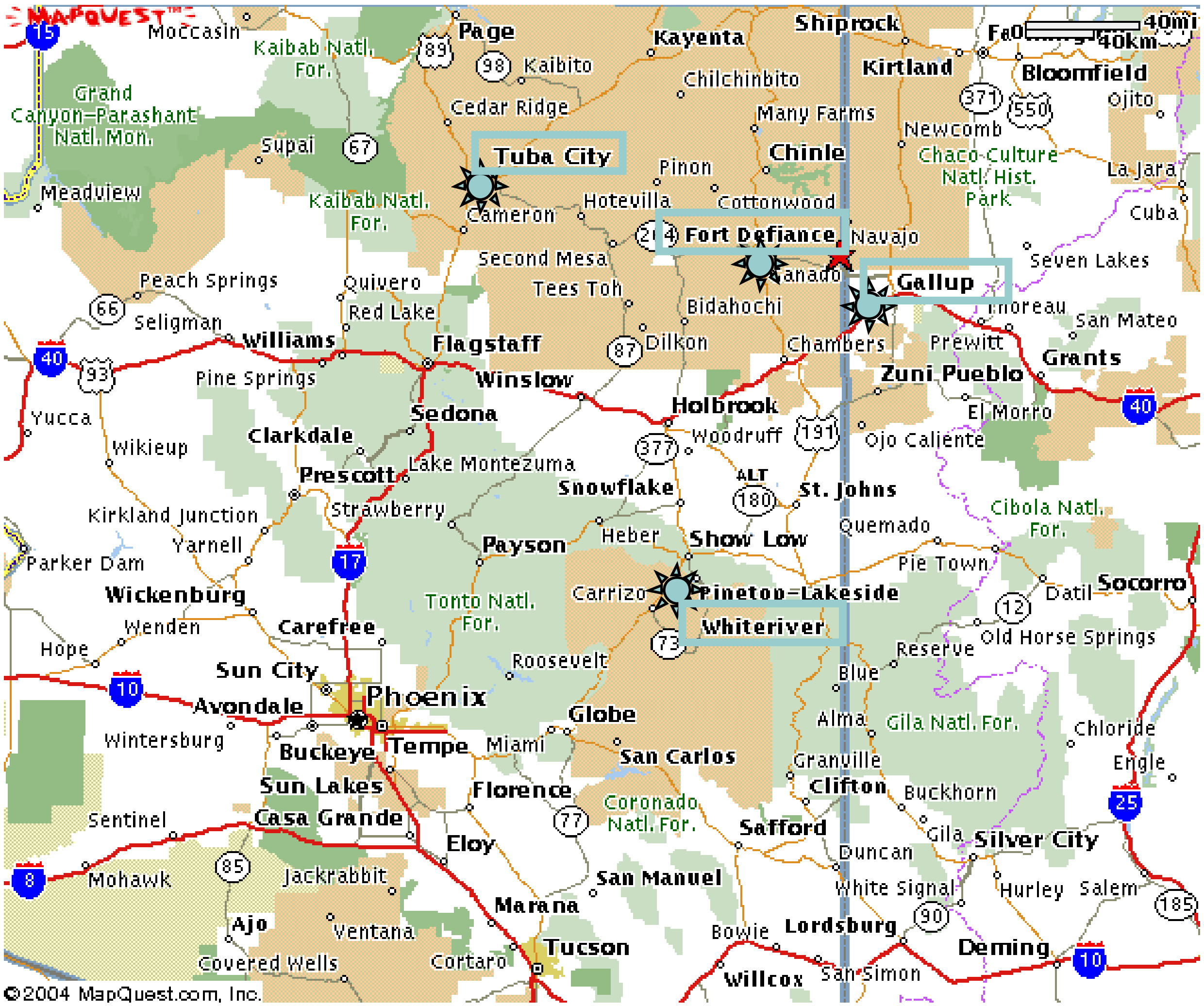
The Navajo Nation

- Largest reservation in the U.S.
  - - 25,000 square mile reservation crossing Arizona, New Mexico, and Utah
- ~125,000/250,000 Navajo tribal members live on the reservation
- Largest of reservation-based governments
  - Executive Branch: elected President and Vice-President
  - Legislative Branch: 88 council members represent 110 local Navajo Nation Chapters.
  - Judicial Branch: The Chief Justice is appointed by the Navajo Nation President.
  - Local health boards, chapters and Navajo IRB and National IHS IRB approval is required for all research conducted on the Reservation (Total Reviews=12).

The White Mountain Apache

- 2,500 square mile reservation in east-central Arizona.
- 15,000 Tribal members live on the reservation.
- An elected, 11-member Tribal Council comprised of a Chairman, Vice Chairman and nine Council members governs the Apache Tribe.
- Apache Tribal Council, Apache Health Board, Whiteriver SU, and Phoenix IHS IRB approval is required for all research conducted on the Reservation (Total Reviews=4).

Study Sites



Opportunities and Challenges

- Abundant natural resources
- Some successful tribal enterprises
- Family is the nexus of support
- Lack of bitterness about history of subjugation
- Open and hopeful about the future

- Poverty
- Child morbidity and mortality
- Low educational achievement
- High unemployment
- Natural disasters

Johns Hopkins Center for American Indian Health

- Founded in 1991
- Based on 15 years' collaboration with SW Tribes
- Mission: To work in partnership with NA tribes to raise the health status and self-sufficiency of AI people to the highest possible level.
- 11 sites and 130 employees (~50% are Native)

Risks for NA Teen Moms & Children

Priority Needs For NA Youth on Reservations

- 46% of NA families started by adolescent parents
- NA communities have large populations <18 years
- Health disparities for NA < 25 year olds
  - Substance Abuse
  - Injuries
  - Suicide/Depression
  - Obesity/Diabetes
  - Abuse, Neglect, Domestic Violence

Service Needs For NA Youth on Reservations

- Under-resourced mental and behavioral health programs to address depression, substance abuse, and suicide
- Shortage of trained NA health care providers
- Transportation barriers to clinical care
- Lack of prevention programs

Protective Factors

- Culture and traditions support “family” above any other domain as the nexus of strength for individuals.
- Navajos often introduce themselves by name and by clan, underscoring identity linked to family lineage.
- Healing traditions, puberty ceremonies and other ceremonies involve often extended family members in key roles that represent stabilizing or restorative forces.
- Tradition also dictates that extended family members take part in the child-rearing process.

Home Visiting Programs

- Multiple and integrated theoretical models
- Multiple benefits
  - Decrease risks to children associated with inadequate health care during pregnancy and early childhood
  - Improve child behavior outcomes by promoting competent and sensitive parenting
  - Improve maternal outcomes by preventing compromised early maternal life course
  - Improve parental competence from investment in parenting

Cultural & Contextual Support for Home Visiting & Family-Based Approach

- Family is highly valued by NA cultures
- Home-based and family-based approaches integral to traditional healing modalities
- Home visiting can overcome transportation barriers
- Home visiting can overcome language/cultural barriers, if home visitors are NA

National Evidence for Home Visiting Approaches

Literature Review

- Effective parenting is most powerful way to reduce adolescent problem behaviors
- Family-based prevention approaches have effect sizes 2-9 times larger than child-only prevention strategies
- Prenatal and infancy home-visiting by nurses can reduce childhood injury and improve child development and maternal life course outcomes
- Effects can be long term: fewer arrests, substance use, promiscuous sexual activity seen among 15-year olds
- Family-based prevention approaches have been replicated with various cultural groups and different ages of children
- Cost-effectiveness of home-visitation programs has been shown among low-income populations

(Refs: Olds, 2004; Kumpfer et al, 2003; Olds, 2002; Eckenrode et al, 2000; Olds et al, 1993)

What is Not Known

- Can home visiting interventions in reservation-based communities impact on parenting, maternal and child outcomes?
- Can NA paraprofessionals be effective home visitors?

History of Family Spirit

1995

"SOS" Project
* service
* teen mothers, babies
* prenatal to 6 mos pp
(160 moms served)

1998-99

"Fathers Project":
curriculum to address needs of men expecting babies with NA teen moms.

(55 dads; 62 moms served)

1999-2001

"Family Strengthening":
* parallel curriculum teen moms/dads
* prenatal to baby's 6 month birthday
* RCT evaluation moms/dads
(48 dads; 68 moms served)

2002-05

"Family Spirit":
* teen moms/dads
* prenatal to baby's 12 mos bday
* RCT evaluation moms/dads
(75 dads; 167 moms served)

2005-09

"Cradling our Future":
* teen moms
* 28 weeks pre through baby's 2nd birthday;
* RCT evaluation moms/kids
(320 moms/kids expected)

Family Spirit Study Design

167 Teen Moms
Enroll in Study
at ≤ 28 wks gestation

81 Moms
(**Intervention group**)

Family Spirit Intervention

86 Moms
(**Control group**)

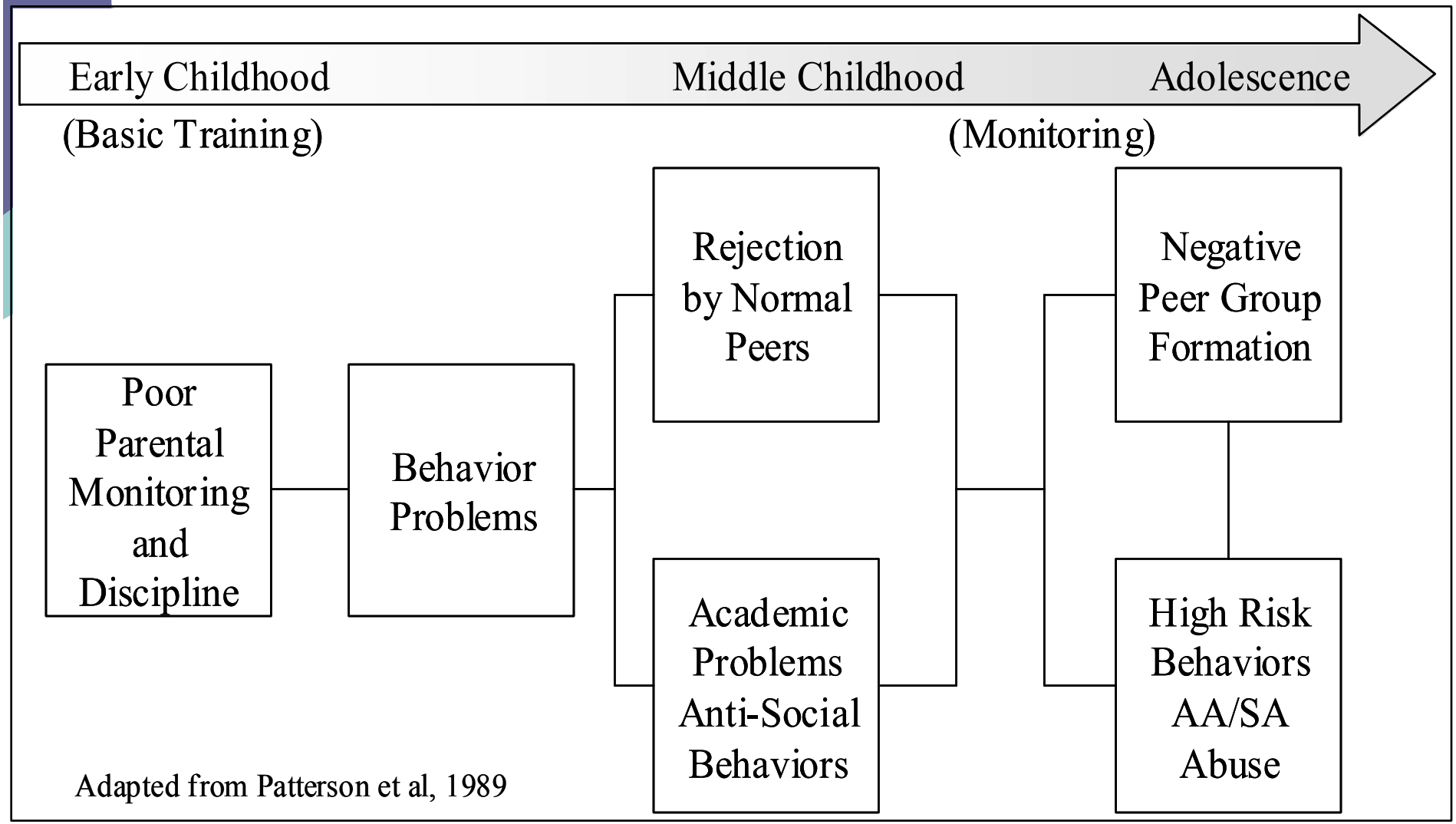
Breastfeeding Education

Family Spirit Intervention Aims

- Increase parenting knowledge, skills and child care capacity
- Improve mother's health and behavior outcomes
- Improve children's health and development outcomes (0-2 years)

- Promote protective factors; work in context of family to serve needs of mothers and children

Conceptual Framework



Participant profile, by study group

	Treatment (N=81)	Control (N=86)	Total (N=167)
Demographic Characteristics	**n (%)**	**n (%)**	**n (%)**
Age at time of conception (range 14-22 years):			
14-17 years	42 (52)	48 (56)	90 (54)
18-19 years	26 (32)	29 (34)	55 (33)
20+ years	13 (16)	9 (10)	22 (13)
Gestational age (range 3-35 weeks):			
$\leq$ 20 weeks	39 (48)	53 (62)	92 (55)
21-28 weeks	30 (37)	19 (22)	49 (29)
29+ weeks	12 (15)	14 (16)	26 (16)
Parity: $\geq$ 1	8 (10)	8 (9)	16 (10)
Currently married	9 (11)	5 (6)	14 (8)
Male partner enrolled in program	35 (43)	45 (52)	80 (48)

Participant profile, by study group

	Treatment (N=81)	Control (N=86)	Total (N=167)
Demographic Characteristics	**n (%)**	**n (%)**	**n (%)**
Site:			
Fort Defiance	27 (33)	30 (35)	57 (34)
Gallup	13 (16)	18 (21)	31 (19)
Tuba City	21 (26)	18 (21)	39 (23)
Whiteriver	20 (25)	20 (23)	40 (24)
Tribal affiliation:			
Navajo	49 (60)	59 (69)	108 (65)
Apache	14 (17)	17 (20)	31 (19)
Other/Mixed	18 (22)	10 (12)	28 (17)
Education: completed high school/GED/some college	31 (38%)	35 (41%)	66 (39%)
Currently employed	9 (11)	11 (13)	20 (12)
Living situation:			
Live in same household as parents	63 (78)	58 (67)	121 (72)
Live in same household as partner	50 (62)	63 (73)	113 (68)

Changes in Knowledge Scores

Change Outcome	Control 2 mo (n=71) 6mo (n=68) 12mo (n=45)	Treatment 2 mo (n=54) 6mo (n=47) 12mo (n=37)	Effect Size	Difference (95% CI)	*P* Value
2 months postpartum	2.6 (9.9)	3.2 (10.4)	0.06	2.7 (0.4, 5.0)	**0.02**
6 months postpartum	12.8 (14.3)	23.8 (12.1)	0.83	13.3 (8.9, 17.8)	**<0.001**
12 months postpartum	15.2 (14.0)	26.6 (12.1)	0.87	11.8 (6.2, 17.3)	**<0.001**

Mean changes in knowledge scores relating to parenting and childcare increased significantly from baseline (~28 weeks gestation) to 2 months postpartum, 6 months postpartum and 12 months post-partum for the treatment group relative to the control group.

*Outcomes adjusted for: women's baseline knowledge level, age, parity, gestational age, educational status, whether she resided with her partner, whether her partner was also enrolled in the Family Spirit program, and study site.

Differences in Childhood Externalizing Behavior Outcomes at 12 months

ITSEA Externalizing Domain	Control 12mo (n=30)	Treatment 12mo (n=36)	Effect Size	Difference (95% CI)	*P* Value
Externalizing Domain (0-2)	0.57 (0.27)	0.39 (0.29)	0. 65	-0.20 (-0.34, -0.04)	**0.01**
Activity/impulsivity (0-2)	0.98(0.44)	0.69 (0.44)	0.66	-0.31 (-0.54, -0.08)	**0.01**
Aggression/defiance (0-2)	0.35 (0.26)	0.27(0.29)	0.29	-0.08 *-0.23, 0.07)	0.30
Peer aggression (0-2)	0.30 (0.29)	0.13 (0.20)	0.68	-0.23 (-0.40, -0.07)	**0.01**

Mean scores on the ITSEA Externalizing Domain were significantly different between participants in the treatment versus control group, particularly in the areas of activity/impulsivity and peer aggression.

*Outcomes adjusted for: women's baseline knowledge level, age, parity, gestational age, educational status, whether she resided with her partner, whether her partner was also enrolled in the Family Spirit program, and study site.

Differences in Childhood Internalizing Behavior Outcomes at 12 months

ITSEA Internalizing Domain	Control 12mo (n=30)	Treatment 12mo (n=36)	Effect Size	Difference (95% CI)	*P* Value
Internalizing Domain (0-2)	0.50 (0.23)	0.48 (0.16)	0. 36	-0.07 (-0.17, 0.03)	0.18
Depression/withdraw(0-2)	0.15 (0.21)	0.12 (0.23)	0.14	-0.01 (-0.11, 0.11)	0.95
General anxiety (0-2)	0.21 (0.23)	0.20 (0.22)	0.05	0.00 (-0.12, 0.12)	0.99
Separation distress (0-2)	1.02 (0.39)	0.84 (0.30)	0.52	-0.18 (-0.35, -0.01)	**0.04**
Inhibition to novelty	0.82 (0.38)	0.73 (0.36)	0.25	-0.09 (-0.28, 0.10)	0.36

Mean scores on the ITSEA Internalizing Domain—Separation Distress items were significantly different between participants in the treatment versus control group.

*Outcomes adjusted for: women's baseline knowledge level, age, parity, gestational age, educational status, whether she resided with her partner, whether her partner was also enrolled in the Family Spirit program, and study site.

Conclusion

- Largest RCT of home visiting with NA populations
- NA paraprofessionals are effective in carrying out behavioral interventions.
- Intervention had positive effect on parenting skills and internalizing/externalizing child behaviors at 12 months
- A larger RCT is underway to examine longer-term maternal and child outcomes.